

3.8 Galaxies



What is a galaxy?

- A galaxy is a group of stars, planets, dust, and gas that stay together because of gravity.



Types of Galaxies

- There are three main types of galaxies:



Spiral



Elliptical

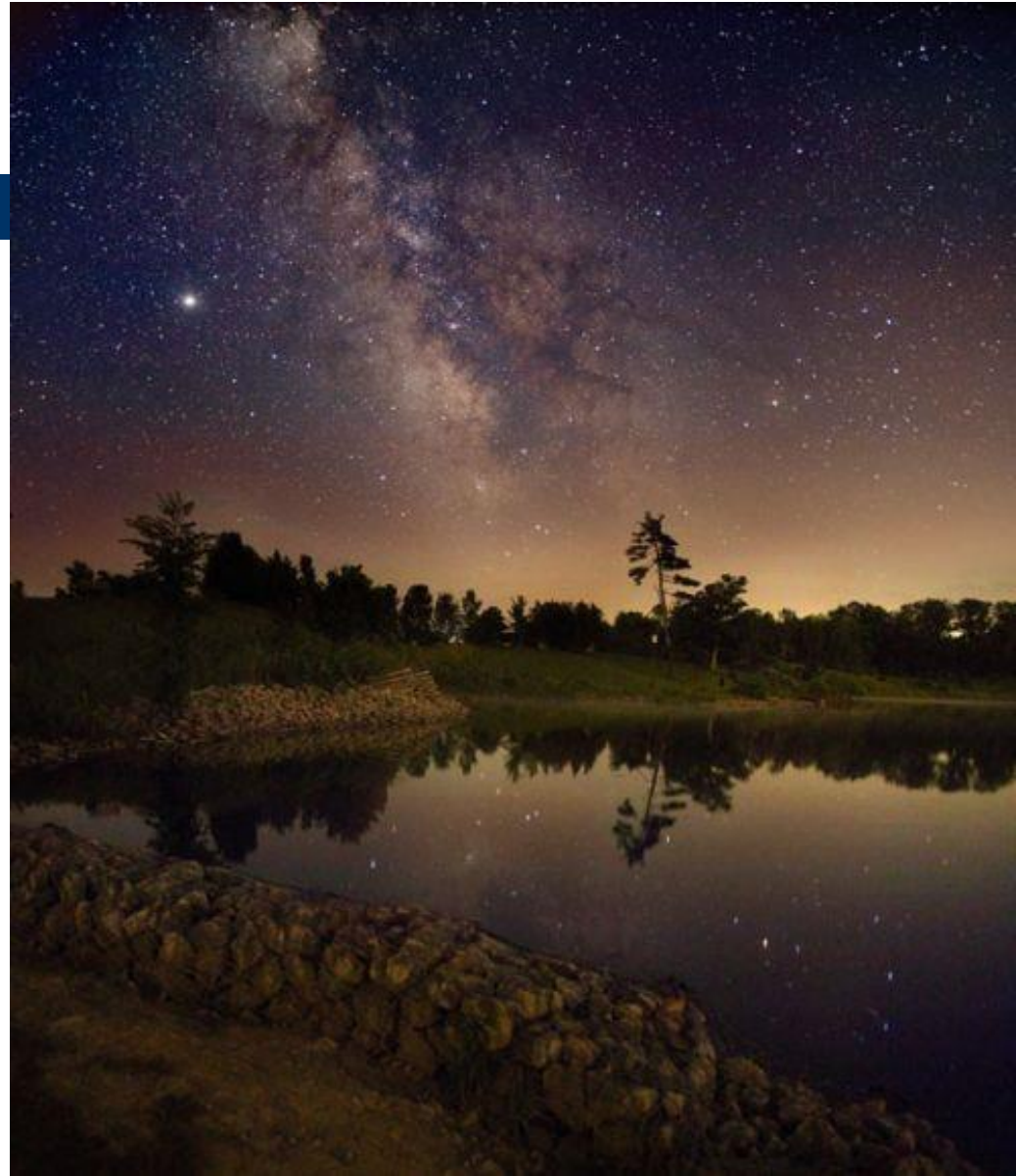


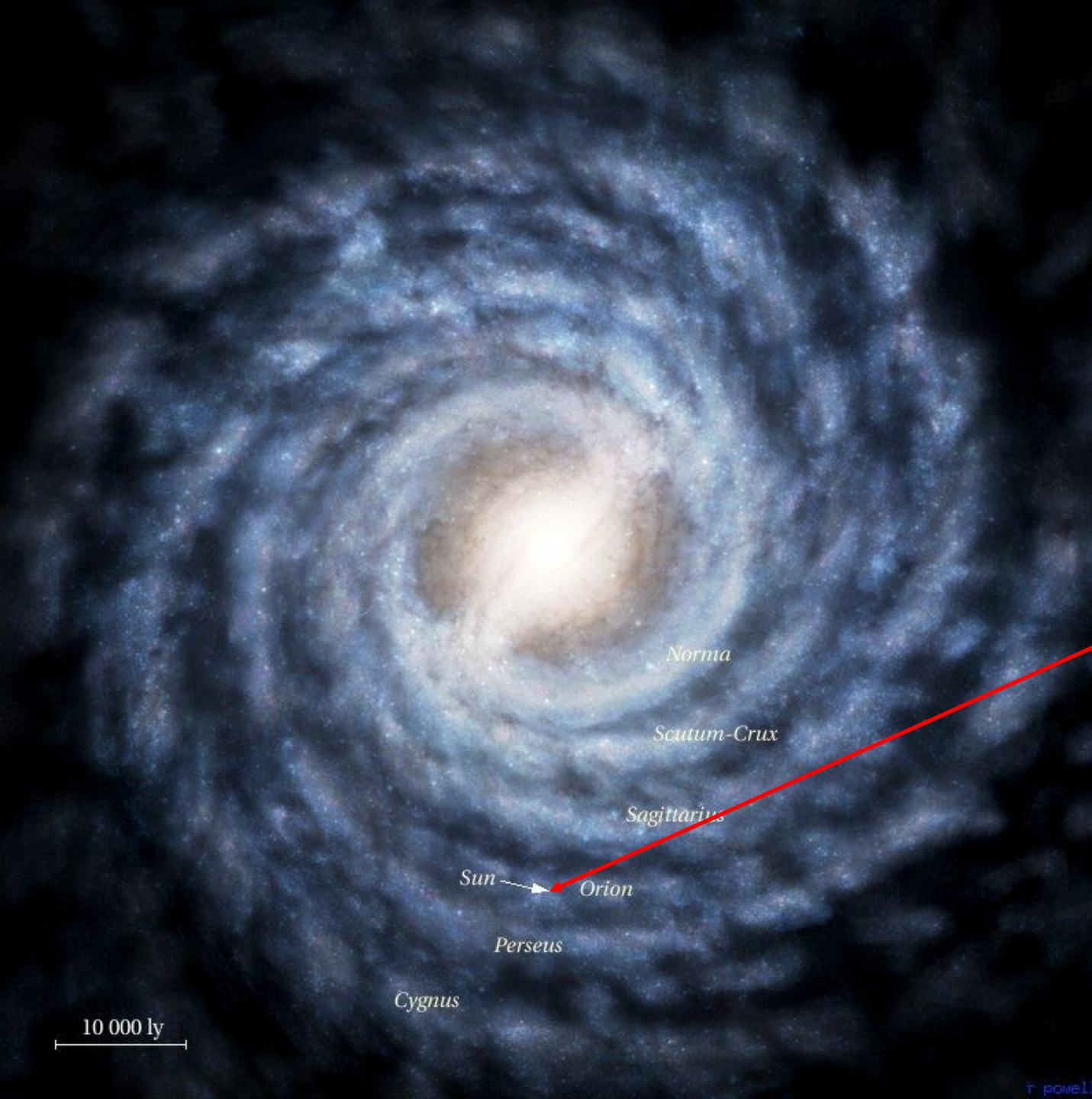
Irregular

Our galaxy – The Milky Way

- You can see the milky way from Earth if you are outside of the city.
- All of the individual stars you can see on a clear night are part of the Milky Way
- The white band is an area with a higher star density

Picture taken in Northern Ontario!



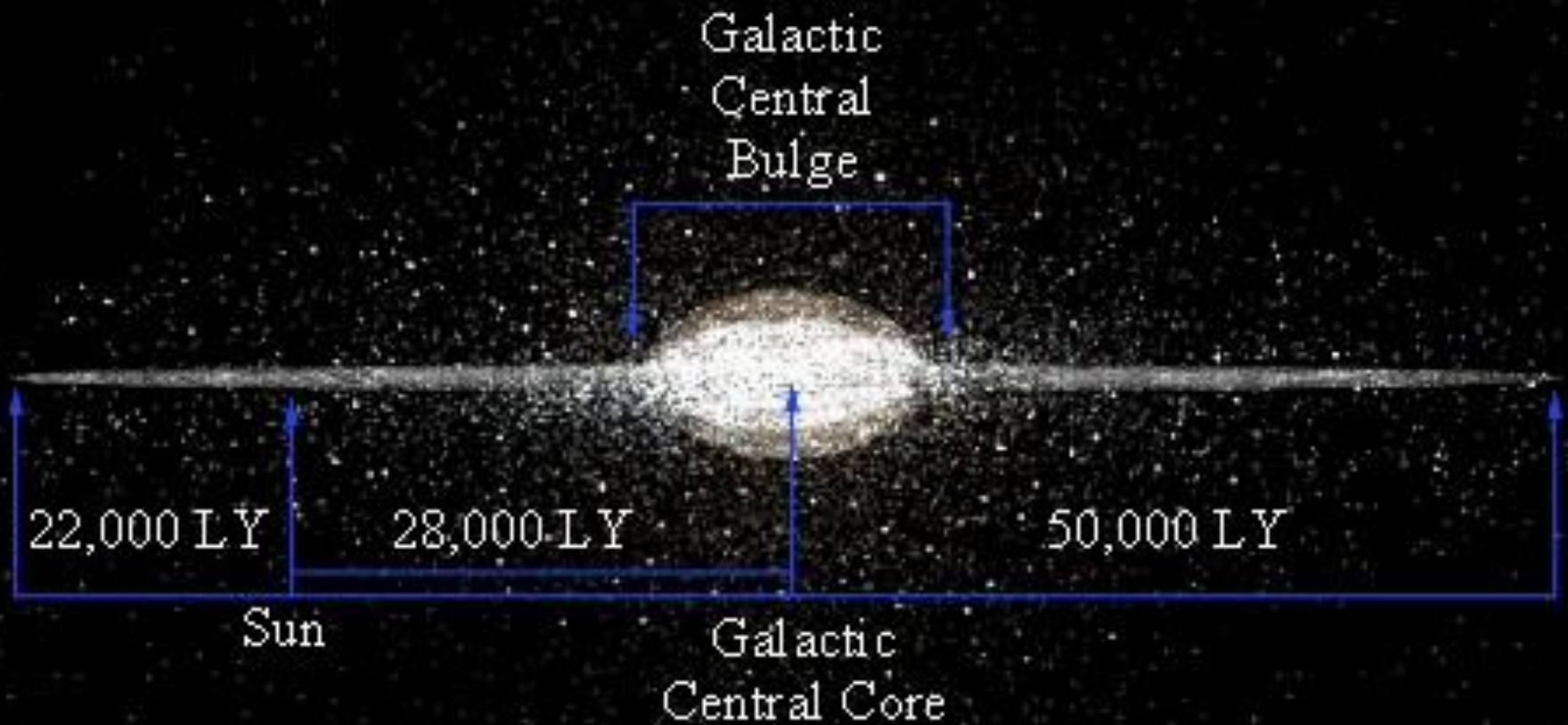


Map of the Milky Way

You are
HERE!

10 000 ly

A side view of the Milky Way



How many galaxies are there?

Too many to count!

This is just one
picture in one
direction...

- This picture shows the amount of sky blocked out by a pin held at arm's length
- How many pins would you need to cover the sky?



Are galaxies moving?

- Yes!
- Sometimes they bump into each other and join together.
- The Milky Way Galaxy and Andromeda are on a collision course!
 - In 5 billion years

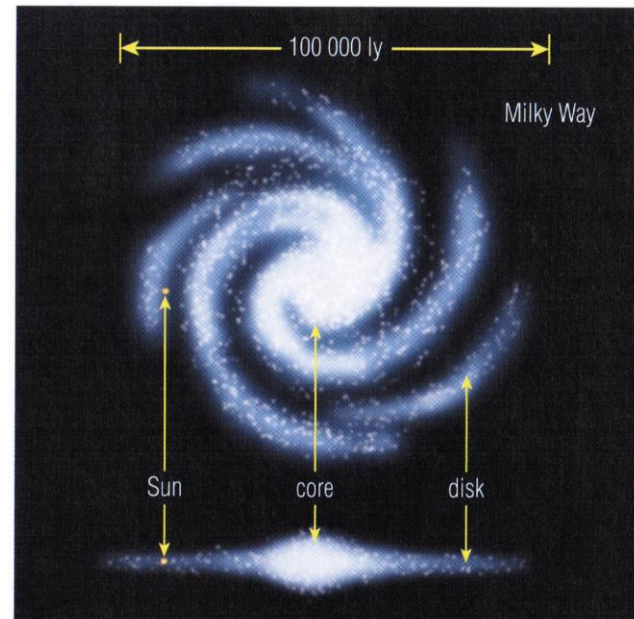


Star Clusters

- A collection of stars held together by gravity
- There are two types of star clusters
 - 1) **Open clusters** (50-1000 stars) along the main band of the Milky Way
 - 2) **Globular Clusters** (100 000 – 1 000 000 stars), arranged in a spherical shape. Found around the central bulge

The position of our solar system

- Around 28 000 light-years (l-y) from the centre
- Galaxy is around 100 000 l-y in diameter
- The visible mass of the Milky Way is about 200 billion solar masses



The Local Group

- Milky Way is part of a group of about 40 galaxies called the **local group**
- The local group is about 10 000 000 l-y in diameter
- The Milky Way and Andromeda are the largest galaxies in the group
- It is estimated that there may be more than 125 billion galaxies!!! Each with billions of stars!

Homework

- Read p.268 to 275
- Answer Pg. 277 # 1, 2, 4, 5, 6, 8, and 9